

What is claimed is;

1. A method of exposing a resist layer formed on a disc-like substrate to an electron beam in a desired pattern to depict a desired pattern on the resist layer wherein the
5 improvement comprises that

the desired pattern is depicted by oscillating back and forth, in directions intersecting the circumferential direction of the disc-like substrate, an electron beam smaller in its beam diameter than the minimum width of the pattern while
10 rotating the substrate in one direction.

2. A method as defined in Claim 1 in which the disc-like substrate is a substrate for producing a master information carrier for magnetic transfer.

3. A method as defined in Claim 2 in which the master
15 information carrier carries on its substrate an irregularity pattern formed of a pattern of protruding portions and the recessed portions representing information to be transferred to a slave medium.

4. A method as defined in Claim 3 in which the
20 information to be transferred to the slave medium includes a servo signal.

5. A method as defined in Claim 2 in which a magnetic layer is formed on the upper surface of the protruding portions.

6. A method as defined in Claim 2 in which a magnetic
25 layer is formed on the upper surface of the protruding portions and the bottom of the recessed portions.

7. A method as defined in Claim 1 in which the disc-like substrate is a substrate for producing an optical disc stamper.

8. A method as defined in Claim 1 in which the disc-like substrate is a substrate for producing a patterned medium for
5 high-density magnetic recording.

9. A disc-like substrate for high-density recording produced by procedure including the steps of exposing a resist layer formed on the disc-like substrate to an electron beam in a desired pattern to depict a desired pattern on the resist
10 layer and forming an irregularity pattern, wherein the improvement comprises that

the desired pattern is depicted by oscillating back and forth, in directions intersecting the circumferential direction of the disc-like substrate, an electron beam smaller
15 in its beam diameter than the minimum width of the pattern while rotating the substrate in one direction.

10. A disc-like substrate as defined in Claim 10 in which the disc-like substrate is a substrate for producing a master information carrier for magnetic transfer.

20 11. A disc-like substrate as defined in Claim 10 in which the master information carrier carries on its substrate an irregularity pattern formed of a pattern of protruding portions and the recessed portions representing information to be transferred to a slave medium.

25 12. A disc-like substrate as defined in Claim 11 in which the information to be transferred to the slave medium includes

a servo signal.

13. A disc-like substrate as defined in Claim 11 in which a magnetic layer is formed on the upper surface of the protruding portions.

5 14. A disc-like substrate as defined in Claim 11 in which a magnetic layer is formed on the upper surface of the protruding portions and the bottom of the recessed portions.

15 15. A disc-like substrate as defined in Claim 9 in which the disc-like substrate is a substrate for producing an optical disc stamper.

16. A disc-like substrate as defined in Claim 9 in which the disc-like substrate is a substrate for producing a patterned medium for high-density magnetic recording.

17. A method of producing a master information carrier
15 for magnetic transfer having a substrate provided with an irregularity pattern formed of a plurality of elements at least one of which extends over a plurality of recording tracks intersecting the direction of the recording tracks, wherein the improvement comprises that

20 production of said substrate comprises the step of exposing a resist layer formed on a disc-like substrate to an electron beam to depict shapes of the upper surfaces of the elements, and

the shapes of the upper surfaces of the elements are
25 depicted by parts in each of the recording tracks by oscillating back and forth, in directions intersecting the circumferential

direction of the disc-like substrate, an electron beam smaller in its beam diameter than the minimum width of the pattern while rotating the substrate in one direction.

18. A method as defined in Claim 17 in which the
5 substrate carries an irregularity pattern formed of a pattern of protruding portions and the recessed portions representing information to be transferred to a slave medium.

19. A method as defined in Claim 18 in which the
information to be transferred to the slave medium includes a
10 servo signal.

20. A method as defined in Claim 18 in which a magnetic layer is formed on the upper surface of the protruding portions.

21. A method as defined in Claim 20 in which the magnetic layer is formed of soft magnetic material.

15 22. A method as defined in Claim 20 in which the magnetic layer is formed of semi-hard magnetic material.

23. A method as defined in Claim 18 in which a magnetic layer is formed on the upper surface of the protruding portions and the bottom of the recessed portions.

20 24. A method as defined in Claim 23 in which the magnetic layer is formed of soft magnetic material.

25. A method as defined in Claim 23 in which the magnetic layer is formed of semi-hard magnetic material.